#### REMARKS

With this amendment, corrections to the citations in the Information Disclosure Statement mailed May 16, 2001 have been introduced. No new matter has been added. A courtesy copy of a replacement 1449 for the Information Disclosure Statement mailed May 16, 2001 is attached hereto as Appendix B. Thus, there are now two Information Disclosures filed in the above identified case. The first one, citing 31 references (AA-AL; AC-AL; and AC-AK), was filed May 16, 2001. The second one, citing 17 additional references (BA-BQ), was filed on March 6, 2003.

#### CONCLUSION

It is believed that no fee is required for this Amendment. If a fee is required, the Commissioner is authorized to charge any fee required for this Amendment to Deposit Account No. 16-1150 (Order No. 011090-035-999).

Respectfully submitted,

PENNIE & EDMONDS LLP

Date: March 6, 2003

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## APPENDIX A

In this Appendix, deleted matter is bracketed and inserted matter is underlined.

From the PTO-1449 Form filed May 16, 2001, Sheet 1 of 3

### U.S. PATENT DOCUMENTS

AA 5,917,322 A Jun. 29, 1999 Gershenfeld et al. 324 307

# OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

- AC [Blatter, G. et al.] <u>Gianni Blatter, Vadim B. Geshkenbein, and Lev B. Ioffe,</u> "Design aspects of superconducting-phase quantum bits", [The American Physical Society (2001)] <u>Physical Review B</u>, Vol. 63, [Pages] 174511, pp. 1–9 [-1 to 174511-9] (2001).
- AD [Briegel, H.-J. et al.,] <u>H.-J. Briegel, W. Dür, J. I. Cirac, and P. Zoller,</u> "Quantum repeaters for communication", <u>ArXiv.org: quant-ph/9803056, pp. 1–8 (1998)</u> [(1998), Pages 1-8].
- AE [Bruder, C. et al.,] <u>C. Bruder, A. van Otterlo, and G. T. Zimanyi,</u> "Tunnel junctions of unconventional superconductors", [The American Physical Society (1995)] *Physical Review B*, Vol. 51, [Pages 904-907] pp. 12904-12907 (1995).
- AF [Chrestin, A. et al.,] <u>A. Chrestin, T. Matsuyama, and U. Merkt,</u> "Evidence for a proximity-induced energy gap in Nb/InAs/Nb junctions", <u>Physical Review B</u>, [The American Physical Society (1997)] Vol. 55, [Pages] <u>pp.</u> 8457-8465 (1997).
- AG [Dana, A. et al.,] <u>Aykutlu Dâna, Charles Santori, and Yoshihisa Yamamoto,</u> "Electrostatic force spectroscopy of a single InAs quantum dot" [(2001)], <u>ArXiv.org: cond-mat/0103125, [Pages] pp.1-5 (2001).</u>
- AH [Feynman, R.,] <u>R. Feynman</u>, "Simulating Physics with Computers", [International Journal of Theoretical Physics (1982)] *International Journal of Theoretical Physics*, Vol. 21, [Pages] <u>pp.</u> 467–488 (1982).
- AI [Grover, L.,] <u>Lov K. Grover</u>, "A fast quantum mechanical algorithm for database search", <u>ArXiv.org: quant-ph/9605043</u>, [Pages] <u>pp. 1-8\_(1996)</u>.
- AJ [Havel, T. et al.,] T. F. Havel, S. S. Somaroo, C.-H. Tseng, and D. G. Cory, "Principles and demonstrations of quantum information processing by NMR spectroscopy"[ (1999)], ArXiv.org: quant-ph/9812086, [Pages] pp. 1–42 (1998).
- AK [Jacobs, A. et al.,] <u>Arne Jacobs, Reiner Kümmel, and Hartmut Plehn,</u> "Proximity Effect, Andreev Reflections, and Charge Transport in Mesoscopic Superconducting-Semiconducting Heterostructures" [(1998) eight pages.], <u>ArXiv.org: cond-mat/9810343</u>, pp. 1–8, (1998).

AL [Jones, J. et al.,] <u>Jonathan A. Jones, Michele Mosca, and Rasmus H. Hansen,</u>
"Implementation of a quantum search algorithm on a quantum computer", [Nature (1998)] <u>Nature</u>, Vol. 393, [Pages] <u>pp.</u> 344-346 (1998).

From the PTO-1449 Form filed May 11, 2001, Sheet 2 of 3

- AC [Joyez, P. et al.,] P. Joyez, P. Lafarge, A. Filipe, D. Esteve, and M. H. Devoret, "Observation of Parity-Induced Suppression of Josephson Tunneling in the Superconducting Single Electron Transistor", [The American Physical Society (1994)] Physical Review Letters, Vol. 72, [Pages] pp. 2458-2461 (1994).
- AD [Kitaev, A.,] <u>A.Yu.Kitaev</u>, "Quantum measurements and the Abelian Stabilizer Problem", <u>ArXiv.org: quant-ph/9511026</u>, [(1995) Pages] <u>pp.</u> 1-22 (1995).
- AE [Knill, E. et al.,] Emanuel Knill, Raymond Laflamme, and Wojciech H. Zurek, "Resilient Quantum Computation", [Science (1998)] <u>Science</u>, Vol. 279, [Pages] pp. 342-345 (1998).
- AF [Korotkov, A. et al.,] <u>Alexander N. Korotkov and Mikko A. Paalanen</u>, "Charge sensitivity of radio frequency single-electron transistor", [American Institute of Physics (1999)] <u>Applied Physics Letters</u>, Vol. 74, [Pages] <u>pp.</u> 4052-4054 (1999).
- AG [Lachenmann, S. et al.,] S. G. Lachenmann, I. Friedrich, A. Förster, D. Uhlisch, and A. A. Golubov, "Charge transport in superconductor/semiconductor/ normal-conductor step junctions", [The American Physical Society (1997)] *Physical Review B*, Vol. 56, [Pages] pp. 108-115 (1997).
- AH [Mooij, J. et al.,] J.E. Mooij, T.P. Orlando, L. Levitov, L. Tian, C.H. van der Wal, and S. Lloyd, "Josephson Persistent-Current Qubit", [Science (1999)] <u>Science</u>, Vol. 285, [Pages] pp. 1036-1039 (1999).
- AI [Nakamura, Y. et al.,] Y. Nakamura, Yu. A. Pashkin, and J. S. Tsai, "Coherent control of macroscopic quantum states in a single-Cooper-pair box", [Nature (1999)] *Nature*, Vol. 398, [Pages] pp. 786-788 (1999).
- AJ [Omelyanchouk, A. et al.,] A.N. Omelyanchouk and Malek Zareyan, "Ballistic Four-Terminal Josephson Junction: Bistable States and Magnetic Flux Transfer" [(1999) Pages 1-11 with six pages of drawings.], ArXiv.org: cond-mat/9905139, pp. 1-17 (1999).
- AK [Ouboter, R. et al.,] R. de Bruyn Ouboter and A. N. Omelyanchouk, "Macroscopic quantum interference effects in superconducting multiterminal microstructures", [Academic Press] <u>Superlattices and Microstructures</u>, [(1999)] Vol. 25, [Pages] pp. 1005-1017 (1999).
- AL [Ryazanov, V. et al.,] V.V. Ryazanov, V.A. Oboznov, A.Yu. Rusanov, A.V. Veretennikov, A.A. Golubov, and J. Aarts, "Coupling of two superconductors through a ferromagnet: evidence for a [η] π-junction", ArXiv.org: cond-mat/0008364 [(2000) Pages] pp. 1-6 (2000).

# From the PTO-1449 Form filed May 16, 2001, Sheet 3 of 3

- AC [Schoelkopf, R. et al.,] R. J. Schoelkopf, P. Wahlgren, A. A. Kozhevnikov, P. Delsing, and D. E. Prober, "The Radio-Frequency Single-Electron Transistor (RF-SET): A Fast and Ultrasensitive Electrometer", [Science (1998)] Science, Vol. 280, [Pages] pp. 1238-1242 (1998).
- AD [Schulz, R. et al.,] R. R. Schulz, B. Chesca, B. Goetz, C. W. Schneider, A. Schmehl, H. Bielefeldt, H. Hilgenkamp, J. Mannhart, and C. C. Tsuei, "Design and realization of an all d-wave dc π-superconducting quantum interference device", [American Institute of Physics (2000)] <u>Applied Physics Letters</u>, Vol. 76, [Pages] pp. 912-914 (2000).
- AE [Shor, P.,] P. Shor, "Introduction to Quantum Algorithms" ArXiv.org: quant-ph/0005003, [(2000)] [Pages] pp. 1-23 (2000).
- AF [Shor, P.,] P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", ArXiv.org: quant-ph/9508027, [Pages] pp. 1-26 (1995).
- AG [Shor, P.,] P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", [Society for Industrial and Applied Mathematics (2000)] SIAM Journal of Scientific and Statistical Computing, Vol. 26, [Pages] pp. 1484-1509 (1997).
- AH [Tafuri, F. et al.,] F. Tafuri, F. Carillo, F. Lombardi, F. Miletto Granozio, F. Ricci, U. Scotti di Uccio, A. Barone, G. Testa, E. Sarnelli, and J. R. Kirtley, "Feasibility of biepitaxial YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Josephson junctions for fundamental studies and potential circuit implementation", [The American Physical Society (2000)] *Physical Review B*, Vol. 62, [Pages] pp. 431-438 (2000).
- AI [Vandersypen, L. et al.,] L. M. K. Vandersypen, M. Steffen, G. Breyta, C. S. Yannoni, R. Cleve, and I. L. Chuang, "Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer", [The American Physical Society (2000)] *Physical Review Letter*, Vol. 25, [Pages] pp. 5452-5455 (2000).
- AJ [Vleeming, B.,] <u>B. Vleeming</u>, "The Four-terminal SQUID", <u>PhD. Dissertation Leiden University</u>, [Pages] <u>pp.</u> 1-100 (1998).
- AK [Volkov, A. et al.,] <u>A.F. Volkov, and R. Seviour,</u> "Phase coherent effects in multiterminal superconductor/ normal metal mesoscopic structures", <u>ArXiv.org:</u> cond-mat/0003370 [(2000)], [Pages] <u>pp.</u> 1-6 (2000).
- AL [Ye, P. et al.,] P. D. Ye, L. W. Engel, D. C. Tsui, J. A. Simmons, J. R. Wendt, G. A. Vawter, and J. L. Reno, "High Magnetic Field Microwave Conductivity of 2D Electrons in an Array of Antidots", ArXiv.org: cond-mat/0103127 [(2001)], [Pages] pp. 1-4 (2001).



# APPENDIX B

Replacement 1449 for the Information Disclosure Statement mailed May 16, 2001.

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	IP OF	REFERENCES CIT	ATTY DOCKET NO.  11090-035-999  APPLICANT  Mohammad Amin  FILING DATE  April 20, 2001			APPLICATION NO 09/839,636  GROUP 2881					
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	AD	Physical Review B, Vol. 63, 174511, pp. 1-9 (2001).  HJ. Briegel, W. Dür, J. I. Cirac, and P. Zoller, "Quantum repeaters for communication", ArXiv.org: quant-ph/9803056, pp. 1-8 (1998).									
	AE	C. Bruder, A. van Otterlo, and G. T. Zimanyi, "Tunnel junctions of unconventional superconductors", <i>Physical Review</i> B, Vol. 51, pp. 12904-12907 (1995).									
	AF	A. Chrestin, T. Matsuyama, and U. Merkt, "Evidence for a proximity-induced energy gap in Nb/InAs/Nb junctions", <i>Physical Review B</i> , Vol. 55, pp. 8457-8465 (1997).									
	AG	Aykutlu Dâna, Charles Santori, and Yoshihisa Yamamoto, "Electrostatic force spectroscopy of a single lnAs quantum dot", ArXiv.org: cond-mat/0103125, pp.1-5 (2001).									
	AH	R. Feynman, "Simulating Physics with Computers", <i>International Journal of Theoretical Physics</i> , Vol. 21, pp. 467–488 (1982).									
	Al	Lov K. Grover, "A fast quantum mechanical algorithm for database search", ArXiv.org: quant-ph/9605043, pp. 1-8 (1996).									
	AJ	T. F. Havel, S. S. Somar						of quantum ir	formatio	n	
	AK	processing by NMR spectroscopy", ArXiv.org: quant-ph/9812086, pp. 1-42 (1998).  Arne Jacobs, Reiner Kümmel, and Hartmut Plehn, "Proximity Effect, Andreev Reflections, and Charge Transport in Mesoscopic Superconducting-Semiconducting Heterostructures", ArXiv.org: cond-mat/9810343, pp. 1-8, (1998).									
	AL	Jonathan A. Jones, Mich	Jonathan A. Jones, Michele Mosca, and Rasmus H. Hansen, "Implementation of a quantum search algorithm on a								
	AC	quantum computer", <i>Nature</i> , Vol. 393, pp. 344-346 (1998).  P. Joyez, P. Lafarge, A. Filipe, D. Esteve, and M. H. Devoret, "Observation of Parity-Induced Suppression of Josephson Tunneling in the Superconducting Single Electron Transistor", <i>Physical Review Letters</i> , Vol. 72, pp. 2458-2461 (1994).									

,	AD	A.Yu.Kitaev, "Quantum measurements and the Abelian Stabilizer Problem", ArXiv.org: quant-ph/9511026, pp. 1-22 (1995).
	AE	Emanuel Knill, Raymond Laflamme, and Wojciech H. Zurek, "Resilient Quantum Computation", Science, Vol. 279, pp. 342-345 (1998).
	AF	Alexander N. Korotkov and Mikko A. Paalanen, "Charge sensitivity of radio frequency single-electron transistor", Applied Physics Letters, Vol. 74, pp. 4052-4054 (1999).
	AG	S. G. Lachenmann, I. Friedrich, A. Förster, D. Uhlisch, and A. A. Golubov, "Charge transport in superconductor/semiconductor/ normal-conductor step junctions", <i>Physical Review B</i> , Vol. 56, pp. 108-115 (1997).
	AH	J.E. Mooij, T.P. Orlando, L. Levitov, L. Tian, C.H. van der Wal, and S. Lloyd, "Josephson Persistent-Current Qubit", Science, Vol. 285, pp. 1036-1039 (1999)
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MAR 0 6 2003	AL	V.V. Ryazanov, V.A. Oboznov, A.Yu. Rusanov, A.V. Veretennikov, A.A. Golubov, and J. Aarts, "Coupling of two superconductors through a ferromagnet: evidence for a π-junction", ArXiv.org: cond-mat/0008364, pp. 1-6 (2000).
BADEMARK	AC	R. J. Schoelkopf, P. Wahlgren, A. A. Kozhevnikov, P. Delsing, and D. E. Prober, "The Radio-Frequency Single-Electron Transistor (RF-SET): A Fast and Ultrasensitive Electrometer", <i>Science</i> , Vol. 280, pp. 1238-1242 (1998).
	AD	R. R. Schulz, B. Chesca, B. Goetz, C. W. Schneider, A. Schmehl, H. Bielefeldt, H. Hilgenkamp, J. Mannhart, and C. C. Tsuei, "Design and realization of an all d-wave dc π-superconducting quantum interference device", Applied Physics Letters, Vol. 76, pp. 912-914 (2000).
	AE	P. Shor, "Introduction to Quantum Algorithms" ArXiv.org. quant-ph/0005003, pp. 1-23 (2000).
	AF	P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", ArXiv.org; quant-ph/9508027, pp. 1-26 (1995).
	AG	P. Shor, "Polynomial-Time Algorithms For Prime Factorization And Discrete Logarithms On A Quantum Computer", SIAM Journal of Scientific and Statistical Computing, Vol. 26, pp. 1484-1509 (1997).
	AH	F. Tafuri, F. Carillo, F. Lombardi, F. Miletto Granozio, F. Ricci, U. Scotti di Uccio, A. Barone, G. Testa, E. Sarnelli, and J. R. Kirtley, "Feasibility of biepitaxial YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-x</sub> Josephson junctions for fundamental studies and potential circuit implementation", <i>Physical Review B</i> , Vol. 62, pp. 431-438 (2000).
	AI	L. M. K. Vandersypen, M. Steffen, G. Breyta, C. S. Yannoni, R. Cleve, and I. L. Chuang, "Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer", <i>Physical Review Letters</i> , Vol. 25, pp. 5452-5455 (2000).
	AJ	B. Vleeming, "The Four-terminal SQUID", PhD. Dissertation Leiden University, pp. 1-100 (1998).
	AK	A.F. Volkov, and R. Seviour, "Phase coherent effects in multiterminal superconductor/ normal metal mesoscopic structures", ArXiv.org: cond-mat/0003370, pp. 1-6 (2000).
	AL	P. D. Ye, L. W. Engel, D. C. Tsui, J. A. Simmons, J. R. Wendt, G. A. Vawter, and J. L. Reno, "High Magnetic Field Microwave Conductivity of 2D Electrons in an Array of Antidots", ArXiv.org. cond-mat/0103127, pp. 1-4 (2001)

EXAMINER	DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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